



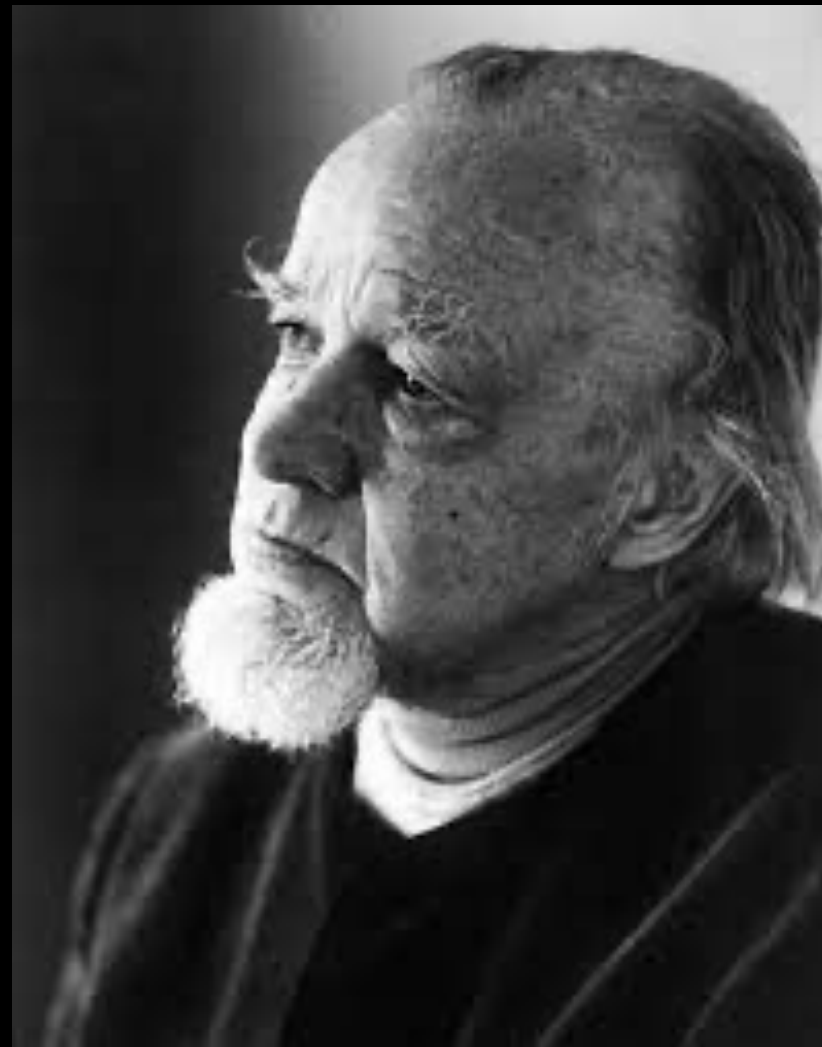
# Charlotte Mason and the Philosophy of Science

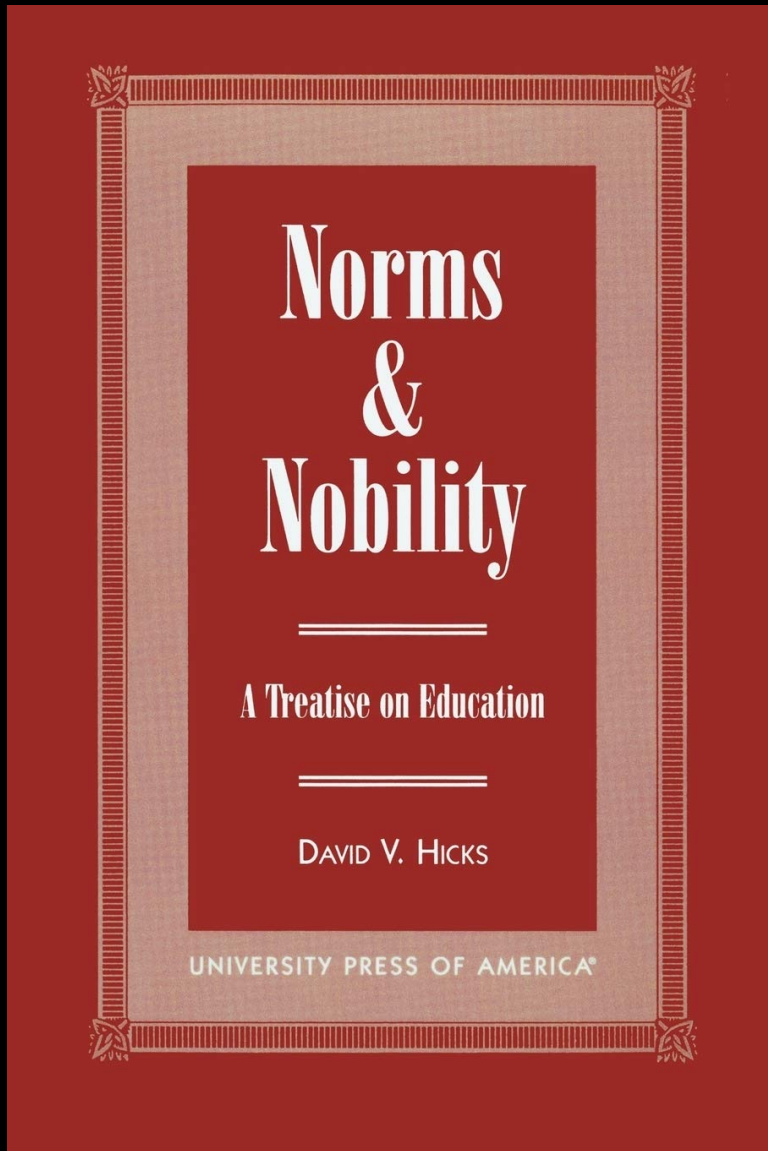
Art Middlekauff

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1. Why teach your children science?

2. Can science discover truth?  
Why or why not?





- Published 1981
- Winner of the 2002 Paideia Prize
- “*Norms and Nobility* is the best and most important book written on education since C. S. Lewis wrote *The Abolition of Man* in 1943.”  
(Andrew Kern, 2010)



# 5

## \* SAVING THE APPEARANCES

the name of  
Hicks's chapter  
on Science

*He also said to the multitudes, "When you see a cloud rising in the west, you say at once, 'A shower is coming'; and so it happens. And when you see the south wind blowing, you say, 'There will be scorching heat'; and it happens. You hypocrites! You know how to interpret the appearances of earth and sky; but why do you not know how to interpret the present time? And why do you not judge for yourselves what is right?"*

*—Saint Luke, the physician*

### I

Science is not an ancient category. The Greek words describing what we think of as science — *peri physeos historia* ("inquiry concerning nature"), *philosophia* ("philosophy"), *theoria* ("speculation"), and *episteme* ("knowledge") — indicate the extent to which philosophy and science have been intertwined.

“When science was studied [by the ancients], it was with the peculiar intention of **saving the appearances**: of using abstract rational models to bring irregular substance at the lowest level-of-being into line with immanent form at the higher levels.”

# Levels of Being

“(1) At the lowest level”

“corresponded to”

“man’s physical nature, his flesh  
and five senses”

“the material nature of the  
universe”

“(2) at the next level”

“immanent”

“the rational nature of man”

“the law, purpose, or *logos*  
inherent in the material universe”

“(3) At the highest level”

“paralleled”

“man’s spiritual, mythopoeic, self-  
transcendent nature”

“the divine creator, the law-giver,  
the form of the good standing  
above the material universe”

## “(1) At the lowest level”

“[the ancients] looked upon the natural world as a **representation** of an impalpable, unchanging reality full of meaning and truth — **not** as something **existing** in its own right”

“Since the observable world is constantly in a state of flux, no fixed knowledge of it can be had.”

## “(2) at the next level”

“Pythagoras found evidence of a **perfect, immanent reality**. His evidence was not found at the empirical level of appearances, but at a higher level in the rational mind.”

“One can only attain fixed knowledge at the highest level of knowledge by escaping the fickle world of sense perception and by contemplating the divine Reality, ... the Supreme Good underlying it.”

# Saving the Appearances

“the irrational, concrete manifestations  
of a material universe”  
required  
“rational, abstract models”



# (1) Science cannot discover truth

“Philosophy dictated, therefore, that one could *save* the appearances with hypothetical models, but one could not *know* the appearances in a manner commensurate with modern empirical proof and technological innovation. Only the nonempirical, unalterable, *immanent reality* could be the subject of knowledge.”

“Contradiction between hypotheses did not matter”

“Aristarchus put forward his heliocentric hypothesis, not as a description of a physical reality, but for use in a mathematical model”

## (2) Science is not empirical

“the apparent irregularity and instability of nature ... led the ancients to question the reliability of experiment and observation”

“one needs only abstract models with nonempirical hypotheses to save the appearances”

“To the ancients, who expected science to save the appearances, experience for its own sake was worthless — or worse, an experience of the unregenerate appearances might prove possibly detrimental, creating by emulation disharmony in the soul.”



### (3) Science is theoretical, not practical

“The ancients’ interest in science was what we today would call ‘theoretical’”

“The ancients expected the study of mathematics to take their minds off the appearances and to put them on the abstract forms underlying the appearances”

“The goal of man was to be an incarnation of the idea, the universal, and hence the study of geometry, of abstract forms, was more religious than practical, or more accurately, was practical because religious.”

(R. J. Rushdoony)

*Norms & Nobility*, pp. 58, 56

*The Philosophy of the Christian Curriculum*, p. 5

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## (4) Science is deductive, not inductive

“having recently acquired a compelling system of logic, [the ancients] preferred to concentrate on abstract, deductive methods of proof (synthesis) rather than on concrete, inductive methods of discovery (analysis)”

# The reason to teach science is... to develop virtue

“Deep down, perhaps, the ancients distrusted science”

“[Science’s] preoccupation with unstable appearances hindered man’s climb to a knowledge of the changeless immanent realities and left man open to the excess of greed and ambition”

“the ancients treated knowledge as a source of virtue challenging the individual to improve himself and to look beyond the appearances for truth”

# The classical approach should be recovered

“So long as it seeks to move man toward the highest level-of-being — saving the appearances, while promising more perfect self-knowledge — mathematics remains a unifying force in the curriculum.

But as soon as it loses its classical aim and begins to serve the lowest level-of-being, mathematics also loses its integrative character and fixes a gulf between the arts and the sciences.”

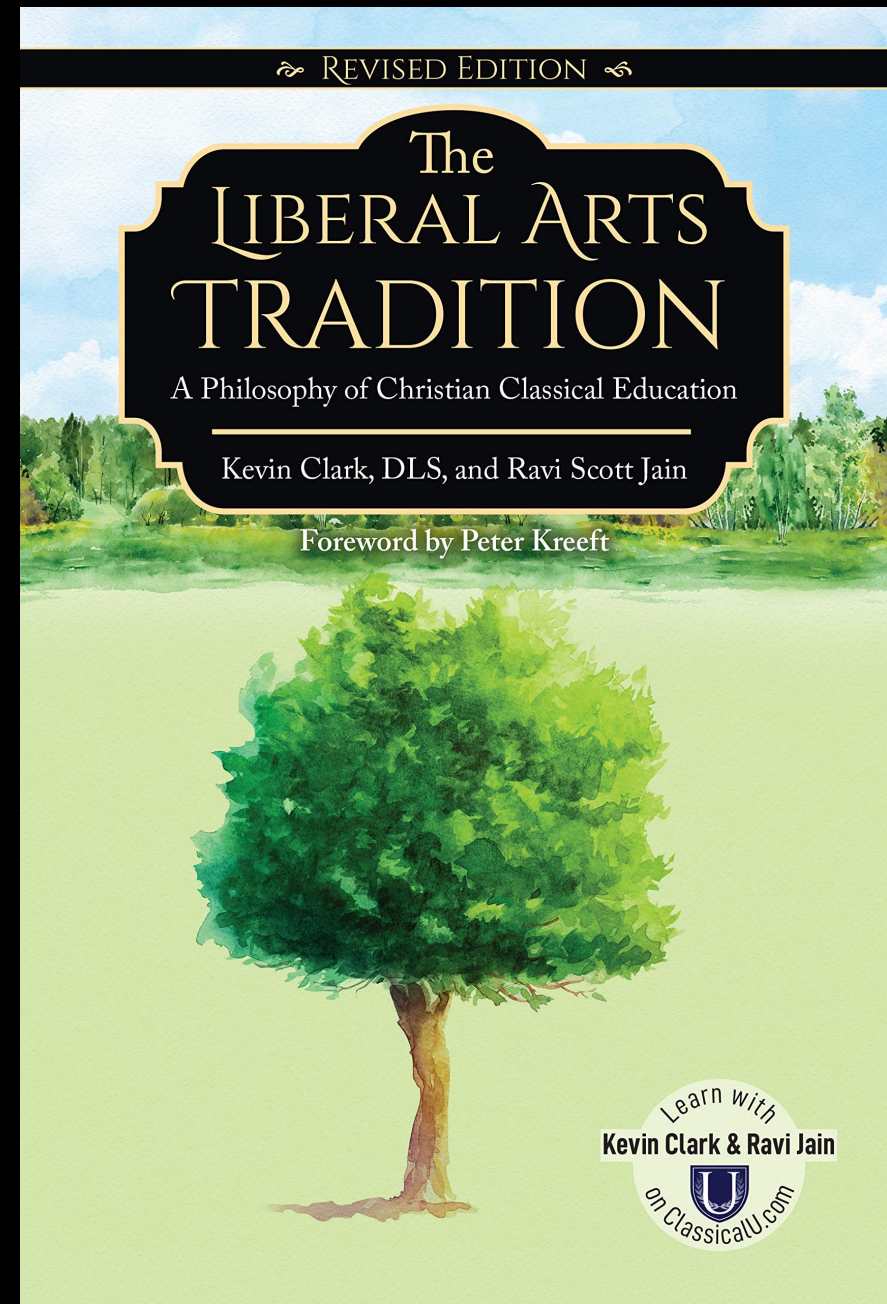
“There is still a need ... to save the appearances: to make man’s knowledge of the appearances answer to his normative concerns. Even in science, what is draws meaning and value from what ought to be.”

“A foundation in the seven liberal arts provides the common reason which is required to adjudicate the truth of arguments and justify or demonstrate the claims of reason...

this approach holds that to know something means being able to justify it through a series of causal links describing why it must be so, and all of the liberal arts may be involved in this process.”

*The Liberal Arts Tradition*, pp. 99, 105

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Who destroyed this model of science?



“No doubt  
[Francis]  
Bacon, who  
disparaged  
classical  
science for its  
pure, non-  
technological  
approach...



...is the true  
prophet of  
our age”

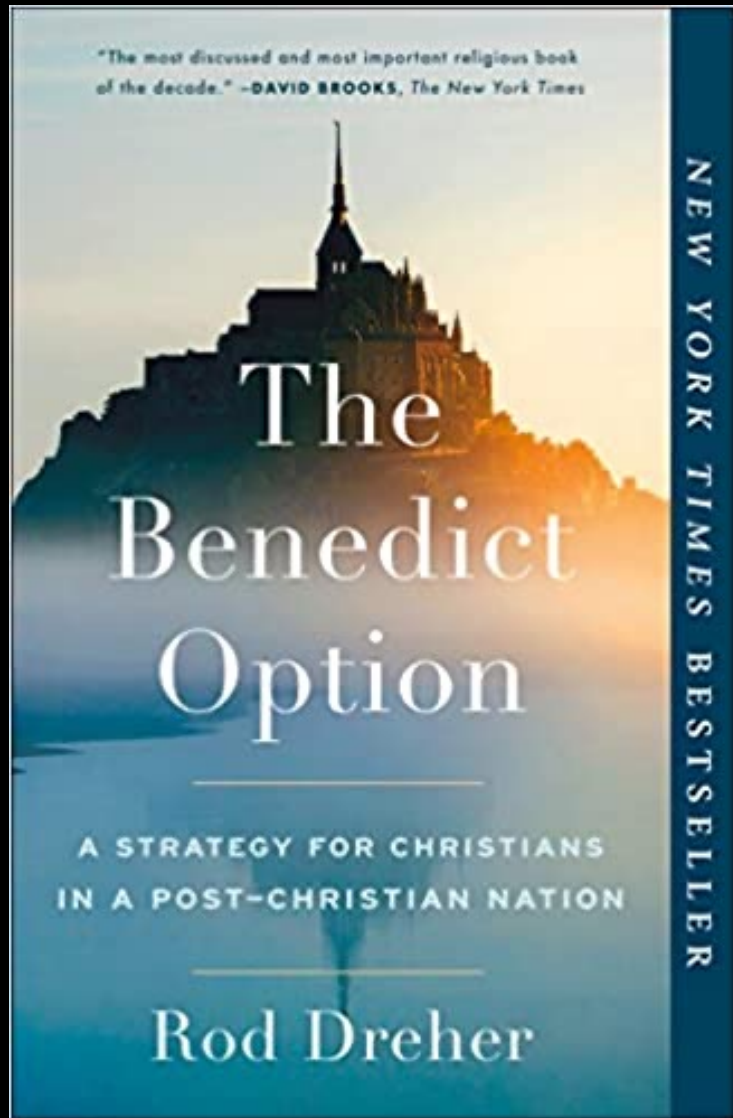




“unlike the playful hypotheses used by the ancients to save the appearances, [Bacon’s models] presume ... to describe things as they truly are”

“With Bacon, technological science begins to replace the purely speculative science of antiquity, gradually rendering the inherited purposes of classical education as foolish”

“[Bacon] ... started a revolution that profoundly altered man’s assumption about himself, while dramatically expanding his opportunities for material progress”



“Sir Francis Bacon ... famously said that scientific discovery ought to be applied ... to improve the lives of humans by reducing their pain, suffering, and poverty.

This was a turning point in the history of ideas. The natural world was to be taken no longer as something to be contemplated as in any way an icon of the divine, but rather as something to be understood and manipulated by the will of humankind for its own sake.

In this way, the Scientific Revolution further distanced God from Creation in the minds of men.”



- “hostility within the history of modern science to classical ideas about form”
- “the villains of the piece [are] René Descartes and Francis Bacon”
- ““if we compare ... (Bacon) with Marlowe’s Faustus, the similarity is striking””
- ““the modern scientific movement was tainted from its birth’ ... a bad trajectory”
- “Bacon and Descartes ... were both very deliberate in promoting a decisive break with the philosophical tradition. Bacon himself professed his desires to advance ‘a total reconstruction of sciences, arts, and all human knowledge raised upon the proper foundations’”
- “Beginning with Bacon, science attends ... with abstract laws of nature discovered with through the process of experimentation”
- “For Bacon, leisure was not the basis of culture... Instead, the principal cultural task was action, striving to control, to conquer nature.”

“Scientific Reductionism and the Law of Form” by Ken Myers

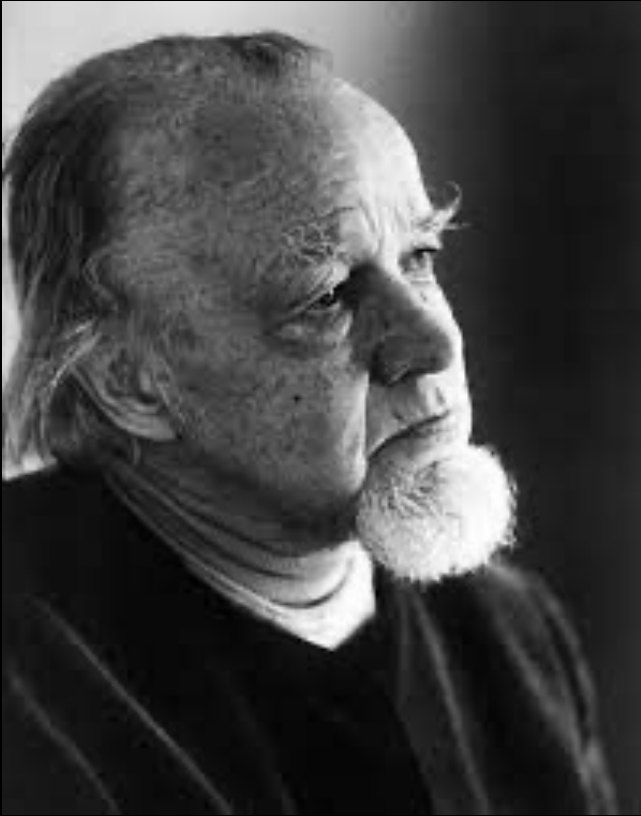


# Did the PNEU know about this?



“Aristotle is by Lord Bacon almost regarded as the enemy of mankind, or at any rate as one who for two thousand years detained the Chosen People in the wilderness of barren speculation, instead of allowing them to enjoy the material blessings of the land flowing with milk and honey.”

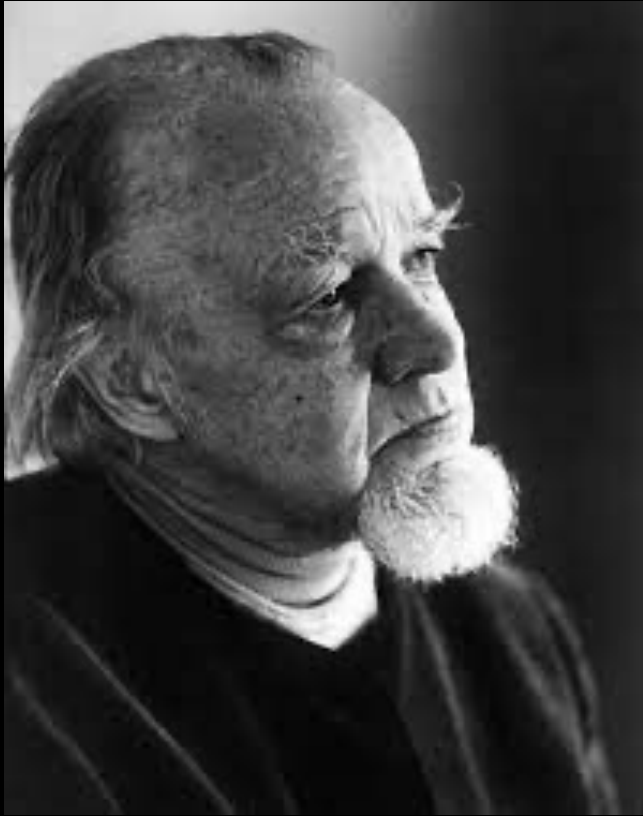




“medieval science was based on authority rather than observation. It developed through logic rather than experimentation”

“Francis Bacon ... [fought] a battle against the old order of scholasticism with its slavish dependence on accepted authorities. He stressed careful observation and a systematic collection of information ‘to unlock nature’s secrets.’”

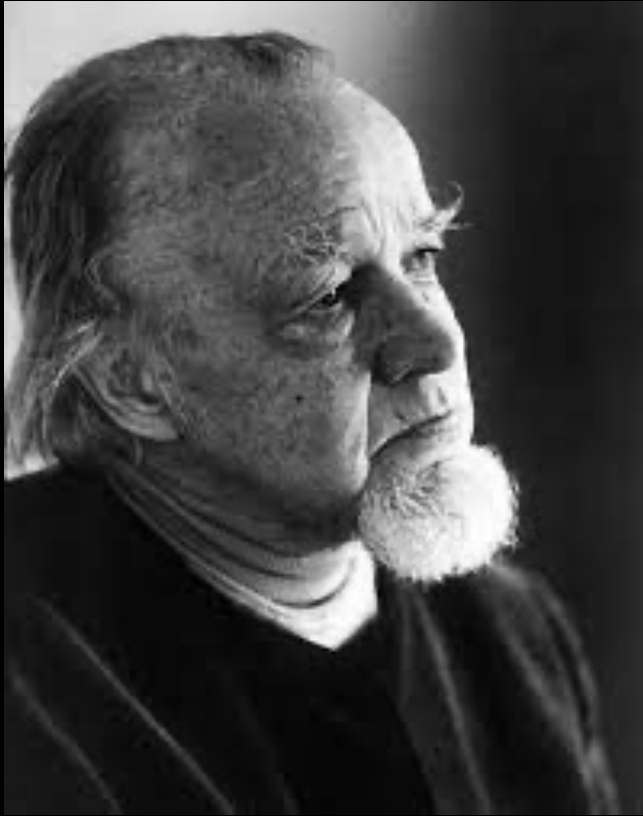
“God himself had told mankind to have dominion over nature, and ... to [Francis Bacon] science had a part in this.”



“Francis Bacon, who could be called the major prophet of the Scientific Revolution, took the Bible seriously, including the historic Fall, the revolt of man in history...

Bacon did not see science as autonomous. Man, including science, is not autonomous. He is to take seriously what the Bible teaches about history and about that which it teaches has occurred in the cosmos.

Yet, upon the base of the Bible’s teaching, science and art are intrinsically valuable before both men and God. This gave a strong impetus for the creative stirrings of science to continue rather than to be spasmodic.”



“The rise of modern science did not conflict with what the Bible teaches; indeed, at a crucial point the Scientific Revolution rested upon what the Bible teaches.  
Both Alfred North Whitehead (1861–1947) and J. Robert Oppenheimer (1904–1967) have stressed that modern science was born out of the Christian world view.”

“for Bacon and other scientists working on the Christian base, there was no separation or final conflict between what the Bible teaches and science”



Serese,

Comenius

Rousseau

Pestalozzi

Locke

Mulcaster

Rattiche,

> Bacon.

# (1) Science can discover truth

“On the Christian base, one could expect to find out something true about the universe by reason. There were certain other results of the Christian world view. For example, there was the certainty of something ‘there’—an objective reality—for science to examine. What we seem to observe is not just an extension of the essence of God”

“because the early scientists believed that the world was created by a reasonable God, they were not surprised to discover that people could find out something true about nature and the universe on the basis of reason”

## (2) Science *is* empirical

“Living within the concept that the world was created by a reasonable God, scientists could move with confidence, expecting to be able to find out about the world by *observation and experimentation...*

Since the world had been created by a reasonable God, they were not surprised to find a correlation between themselves as *observers and the thing observed*—that is, between subject and object.

This base is normative to one functioning in the *Christian framework*, whether he is observing a chair or the molecules which make up the chair.”

### (3) Science is practical

“Christianity is the mother of modern science because it insists that the God who created the universe has revealed himself in the Bible to be the kind of God he is. Consequently, there is a sufficient basis for science to study the universe.”

“Another result of the Christian base was that the world was worth finding out about, for in doing so one was investigating God’s creation. And people were free to investigate nature, for nature was not seen as full of gods and therefore taboo. All things were created by God and are open for people’s investigation.”

## (4) Science is inductive, not deductive

“Whitehead ... says ... that because of the rationality of God, the early scientists had an ‘inexpugnable belief that every detailed occurrence can be correlated with its antecedents in a perfectly definite manner, exemplifying general principles’”

“Science works the data of experience into a whole of interconnected facts of systematization in which the personal equation has been eliminated. Fundamentally all science is a tracing of likeness amid diversity; that is to say, it makes generalisations”

*How Should We Then Live?*, Chapter 7

*The Parents' Review*, vol. 33, p. 769, “Science, Philosophy and Religion,” by Stephen G. Williams

# The classical approach should **not** be recovered

“Greek mathematics and science stagnated because the theological pondering that undergirded these disciplines were not biblical”

“There was no confidence that the code of Nature’s laws could ever be unveiled and read”

“German historian Oswald Spengler (1880-1936) remarks that the ‘history of Western knowledge is thus one of progressive emancipation from Classical thought.’”

# Two Approaches to Science

## Classical

1. Cannot discover truth
2. Nonempirical
3. Theoretical
4. Deductive

## Christian

1. Discovers truth
2. Empirical
3. Practical
4. Inductive



# Charlotte Mason Embraced the Christian Approach



“Let us first of all settle it with ourselves that science and religion cannot, to the believer in God, by any possibility be antagonistic.

Having assured ourselves of this, we shall probably go on to perceive that the evolution of science is in fact a process of revelation.”

# No Prerequisite



“It is infinitely well worth the mother’s while to take some pains every day to secure, in the first place, that her children spend hours daily amongst rural and natural objects; and, in the second place, to infuse into them, or rather, to cherish in them, the love of investigation”

“At a former meeting of the British Association, the President lamented that the progress of science was greatly hindered by the fact that we no longer have ... close observers of Nature as she is... It is all written in books, said [a] journal, so we have no longer any need to go to Nature herself. Now the knowledge of Nature which we get out of books is not real knowledge; the use of books is, to help the young student to verify facts he has already seen for himself. Let us, before all things, be Nature-lovers; intimate acquaintance with every natural object within his reach is the first, and, possibly, the best part of a child's education”



“And for science, he is in a position to do just the work which is most needed; he will be a close, loving observer of Nature at first hand, storing facts, and free from all impatient greed for inferences”





“The kernel of [the nature-study] method of treatment is the study of the organism in its environment, its relation to the world about it, and the features which enable it to function in its surroundings.

This study takes the individual organism, rather than an abstract phylum or genus, as the point of departure.

Mrs. Comstock believed that the student found in such a study a fresh, spontaneous interest which was lacking in formal textbook science”



# Why teach your children science?

The reason to teach science is...  
to awaken wonder, awe, and worship

“However little [scientific] work we do..., we gain by it some of the power to appreciate, not merely beauty, but fitness, adaptation, processes. Reverence and awe grow upon us, and we are brought into a truer relation with the Almighty Worker.”

“‘I think that is very wonderful,’ a little girl wrote in an examination paper after trying to explain why a leaf is green. That little girl had found the principle—admiration, wonder—which makes science vital, and without wonder her highest value is, not spiritual, but utilitarian.”

*Ourselves, Book II, p. 102*

*Towards a Philosophy of Education, p. 317*

# Science is Universally Taught in the Classical Way

1. Students care about the exam not the truth
2. Students learn from authority and not experience
3. Students are taught to work deductively
4. Students are not taught a concept until they are able to “justify it through a series of causal links describing why it must be so”

“A lifelong curiosity about the natural world together with my parents ..., who inspired in me an awe of nature and instilled an urge to give something back to society, provided the motivation to write this book...

In my early twenties, I had an obsession with birds that gradually led to an awareness of other forms of life. I found myself needing to know all I could about everything in nature.

Plant forays, grubbing through rotten logs, and muddling shallow waters became my pleasure activities, and slowly, like putting together the pieces of a puzzle, I gained an understanding of natural communities.

This book is my attempt to share that accumulated knowledge...

I also want to thank nature, for challenging all my senses and being so much more entertaining and gratifying than the digital world could ever envision.”

# It is not too late for your children...

1. To discover truth
2. To explore
3. To investigate
4. To draw their own conclusions



Thank you